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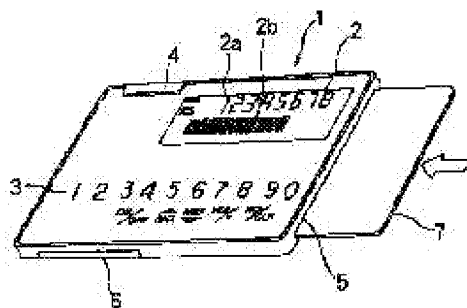
## (54) PORTABLE DEVICE AND SYSTEM FOR PROCESSING INFORMATION

(57)Abstract:

PURPOSE: To efficiently process information by storing received information and writing it in the memory of a card which accepts selected information.

CONSTITUTION: A display part 2 composed of a liquid crystal display device or the like and a key part 3 are provided on the surface of a signal processor 1 as the portable information processor, and a photodetector 4 and an IC card inserting port 5 or the like are provided on its side face part. On the other hand, the display part 2 is equipped with a character display part 2a for displaying the information as characters or figures and a bar code display part 2b for displaying it as a bar code. Then, this signal processor 1 receives serial data composed of optical signals transmitted from the CRT of a television receiver while using the photodetector 4 of the signal processor 1, converts these data into electric signals, stores them and can

store this information in an IC card 7 as needed.



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**CLAIMS**

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[Claim(s)]

[Claim 1] A receiving means by which a non-contact method receives the information sent  
from the receiving set which receives a broadcast signal, A storage means to memorize the  
information received with this receiving means, and an acceptance means to receive the  
card which contained memory, The portable information processor characterized by  
providing a selection means to choose the information memorized for the above-  
mentioned storage means, and the write-in means which writes the information chosen by  
the above-mentioned selection means in the memory of the card received with the above-  
mentioned acceptance means.

[Claim 2] A receiving means by which a non-contact method receives the information sent  
from the receiving set which receives a broadcast signal, A storage means to memorize the  
information received with this receiving means, and an acceptance means to receive the  
card which contained memory, With this acceptance means A selection means to choose  
the information memorized by the memory of the information memorized for the write-in  
read-out means which reads information from the writing of the information memorized  
for the above-mentioned storage means, and the memory of a card to the memory of the  
received card, and the above-mentioned storage means, and a card, The portable  
information processor characterized by providing a display means to display the  
information chosen by the above-mentioned selection means.

[Claim 3] The above-mentioned display means is an information processor which is  
characterized by displaying the information corresponding to an alphabetic character as a  
mark in which machine read is possible while carrying out character representation of the  
information and in which a cellular phone according to claim 2 is possible.

[Claim 4] The information processor which is characterized by having a display selection  
means to choose whether an alphabetic character is displayed with the above-mentioned  
display means, or a mark is displayed, and performing character representation or a mark  
display based on the selection result of this display selection means and in which a cellular

phone according to claim 3 is possible.

[Claim 5] A receiving means by which a non-contact method receives the information sent from the receiving set which receives a broadcast signal, A storage means to memorize the information received with this receiving means, and a selection means to choose the information memorized for the above-mentioned storage means, The 1st equipment which has a display means to display the information chosen by the above-mentioned selection means, Information processing system characterized by consisting of the 2nd equipment possessing a reading means to read the information currently displayed by the above-mentioned display means, and a means to perform dealings based on the information read with this reading means.

[Claim 6] A receiving means by which a non-contact method receives the information sent from the receiving set which receives a broadcast signal, A storage means to memorize the information received with this receiving means, and a selection means to choose the information memorized for the above-mentioned storage means, The 1st equipment which has an acceptance means to receive the card which contained memory, and the write-in means which writes in the information chosen as the memory of the card received with this acceptance means by the above-mentioned selection means, Information processing system characterized by consisting of the 2nd equipment possessing a reading means to read the information memorized by the memory of the above-mentioned card, and a means to perform dealings based on the information read with this reading means.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to a portable information processor and information processing system, and relates to the portable information processor and the information processing system for processing the dealings information about the discount information on the price of a goods sale or service offer etc. especially.

[0002]

[Description of the Prior Art] From the former, the information about the discount of the price of a goods sale or service offer is circulated as the so-called discount coupon etc. to the wrap announcement of a journal or a newspaper etc., and the dealings gestalt which discounts a special price is known only to the customer who brought this coupon etc., for example.

[0003] Moreover, in such a dealings gestalt, acquiring customer information is also performed by making a customer's address, a name, etc. write to a discount coupon etc., and collecting these.

[0004]

[Problem(s) to be Solved by the Invention] As mentioned above, in the former, informational offer, recovery, etc. are performed using papers, such as a discount coupon, and there is a problem that the processing takes time and effort.

[0005] This invention coped with this conventional situation, was made, and tends to offer the portable information processor and the information processing system which can process information efficiently compared with the former.

[0006]

[Means for Solving the Problem] A receiving means by which a non-contact method receives the information to which the information processor in which a cellular phone according to claim 1 is possible is sent from the receiving set which receives a broadcast signal, A storage means to memorize the information received with this receiving means, and an acceptance means to receive the card which contained memory, It is characterized

by providing a selection means to choose the information memorized for the above-mentioned storage means, and the write-in means which writes the information chosen by the above-mentioned selection means in the memory of the card received with the above-mentioned acceptance means.

[0007] A receiving means by which a non-contact method receives the information to which the information processor in which a cellular phone according to claim 2 is possible is sent from the receiving set which receives a broadcast signal, A storage means to memorize the information received with this receiving means, and an acceptance means to receive the card which contained memory, With this acceptance means A selection means to choose the information memorized by the memory of the information memorized for the write-in read-out means which reads information from the writing of the information memorized for the above-mentioned storage means, and the memory of a card to the memory of the received card, and the above-mentioned storage means, and a card, It is characterized by providing a display means to display the information chosen by the above-mentioned selection means.

[0008] In the information processor which the information processor in which a cellular phone according to claim 3 is possible can carry [ according to claim 2 ], the above-mentioned display means is characterized by displaying the information corresponding to an alphabetic character as a mark in which machine read is possible while it carries out character representation of the information.

[0009] In the information processor in which a cellular phone according to claim 3 is possible, the information processor in which a cellular phone according to claim 4 is possible has a display selection means to choose whether an alphabetic character is displayed with the above-mentioned display means, or a mark is displayed, and is characterized by performing character representation or a mark display based on the selection result of this display selection means.

[0010] A receiving means by which a non-contact method receives the information to which information processing system according to claim 5 is sent from the receiving set which receives a broadcast signal, A storage means to memorize the information received with this receiving means, and a selection means to choose the information memorized for the above-mentioned storage means, It is characterized by to consist of the 2nd equipment possessing the 1st equipment which has a display means display the information chosen by the above-mentioned selection means, a reading means read the information currently displayed by the above-mentioned display means, and a means perform dealings based on the information read with this reading means.

[0011] A receiving means by which a non-contact method receives the information to which information processing system according to claim 6 is sent from the receiving set which receives a broadcast signal, A storage means to memorize the information received with this receiving means, and a selection means to choose the information memorized for the above-mentioned storage means, The 1st equipment which has an acceptance means to receive the card which contained memory, and the write-in means which writes in the information chosen as the memory of the card received with this acceptance means by the above-mentioned selection means, It is characterized by consisting of the 2nd equipment possessing a reading means to read the information memorized by the memory of the above-mentioned card, and a means to perform dealings based on the information read with this reading means.

[0012]

[Function] According to the portable information processor and the information processing system of the above-mentioned configuration, it becomes possible to deal with informational offer, recovery, etc. which were being conventionally performed using papers, such as a discount coupon, as an electric signal, and more information can be processed more efficiently.

[0013]

[Example] Hereafter, the detail of this invention is explained about an example with reference to a drawing.

[0014] As drawing 1 - drawing 3 show the appearance configuration of the signal-processing machine 1 as an information processor which can carry this example and show it in these drawings, the display 2 which consists of a liquid crystal display etc., and the key input section 3 are formed in the front face of the signal-processing machine 1, and the electric eye 4 and the IC card insertion opening 5 grade are prepared in the lateral portion. In addition, 6 is a battery holder and 7 is an IC card.

[0015] Moreover, bar code display 2b which displays information as character representation section 2a displayed in an alphabetic character, a figure, etc. by the bar code is prepared in the above-mentioned display 2.

[0016] Drawing 4 shows the functional configuration of the above-mentioned signal-processing machine 1. As shown in this drawing, the signal-processing machine 1 While memorizing temporarily the light sensing portion 10 for receiving the lightwave signal from the outside, the photoelectrical converter 11 which changes the light which received into an electrical signal, ROM15 which stores the program of CPU12 and CPU12 which control many functions of this signal-processing inside of a plane of operation, and the processing result in the case of program actuation Activity hysteresis and proper information on RAM16 for memorizing the signal from a light sensing portion 10, and a signal-processing machine, For example, the count of writing and content to an IC card, Possessor information etc. It consists of the contacts 18, the keyboards 19, and dc-battery 20 grades for performing the driver 14 for displaying data on LCD13 and LCD13 for displaying the content of EEPROM17 and RAM16 for recording etc., and electrical installation with IC card 7.

[0017] Drawing 5 shows the appearance configuration of IC card 7, and IC cards 7 are the IC module 30 which contained CPU, a magnetic stripe 31, and a card which has an embossed character 32. As shown in drawing 2 and drawing 3, the signal-processing machine 1 has become as [ insert / such IC card 7 ], inserts IC card 7 in the signal-processing machine 1, and it is constituted through the contact 33 of IC card 7 so that the data of IC card 7 can be written.

[0018] Moreover, as shown in drawing 6, the signal-processing machine 1 receives the serial data based on the lightwave signal 41 transmitted from CRT of the television receiver 40 by the electric eye 4 of the signal-processing machine 1, and it is constituted so that this information can be stored in IC card 7 by request, while changing this into an electrical signal and memorizing it.

[0019] In addition, the lightwave signal emitted from the television receiver 40 modulates the brightness or color of a television picture, is emitted, and has as information the score information given to a viewer, the date time information, program information, etc., for example.

[0020] Next, the activation procedure of the signal-processing machine 1 is explained with reference to drawing 7.

[0021] An operator starts first by carrying out the depression of the "ON/OFF" switch formed in the key input section 3 of the front face of the signal-processing machine 1. At this time, CPU12 requires starting by supplying a power source from the internal dc-battery held in the battery holder 6 by the depression of the switch concerned, and initializes a circumference component first (101), and a self-test check is performed with this (102).

[0022] When it is judged that this time is unusual, the message which shows abnormalities is displayed on LCD13 (103).

[0023] On the other hand, when it is judged that it is normal, the message it is directed that inserts an IC card is displayed, and it will be in the state waiting for IC card insertion

(104).

[0024] When IC card 7 is inserted in this condition, the initial response data which CPU12 detects this, activates IC card 7, and are transmitted from IC card 7 are received (105).

[0025] And with reference to the received initial response data, it judges whether inserted IC card 7 is an adaptation card (106).

[0026] When the initial response data not suiting are not able to be received or initial response data are not able to be received, the message which means card nonconformance is received and electrical signal supply on a card is suspended (107). And signal-processing machine 1 self stops and it returns to the condition before activation of this processing machine.

[0027] Next, the procedure which collates an operator's personal identification number is explained with reference to drawing 8 using inserted IC card 7.

[0028] First, CPU12 displays the message for inputting a personal identification number into the signal-processing machine 1, and will be in the state waiting for a password input (110).

[0029] According to this, an operator inputs an own personal identification number using the ten key formed in the key input section 3 of the front face of the signal-processing machine 1. CPU12 will require password collating by transmitting this personal identification number to IC card 7 connected, if this is detected. If this demand is received, IC card 7 will compare the personal identification number stored in the interior of a card with the inputted personal identification number, and will output that comparison result to a signal-processing machine (111).

[0030] When the comparison result was received from IC card 7, a comparison result is first judged from response data, the personal identification number stored in the IC card 7 interior and the inputted personal identification number are in agreement and collating is judged to be normal, the signal-processing machine 1 performs a display to that effect, and performs the next processing mentioned later (112).

[0031] When the response data in which an inequality is shown are detected as a result of the above-mentioned decision, while, displaying the message of a personal identification number inequality on the other hand, the message which stimulates a personal identification number input is displayed again (113). Moreover, when response data mean having exceeded the count of allowance of the inequality of the personal identification number concerned, this card suspends the electrical signal supply to IC card 7 while displaying the message which shows an unusable thing (114).

[0032] Next, the signal-processing machine 1 explains the 1st example of the procedure of storing in IC card 7 the data stream which received from the television receiver 40, with reference to drawing 9.

[0033] As mentioned above, when the inputted personal identification number and the personal identification number stored in the IC card 7 interior are in agreement in collating processing of a personal identification number, CPU12 performs a display to that effect, and waits to press a "YES/=" key after this following the ten key (1 or 2) of the key input section 3, and it (120).

[0034] In this condition, if the key concerned is pressed, the lightwave signal transmitted to the signal-processing machine 1 from the television receiver 40 will be received from a light sensing portion 10, and sequential storing of the data stream obtained by this will be carried out to the predetermined field of RAM16 to build in (121).

[0035] Storing processing is suspended, when the ten key "1" is pushed in previous ten key depression processing at this time and a memory area predetermined by the data stream which received fills. Moreover, when the ten key "2" is pushed, a postscript is added, eliminating the data stream of the maximum old things among the data streams in the field concerned, when a predetermined field fills.

[0036] And if CPU12 detects that "NO/CLR" was pushed in the midst of such data stream

storing processing, CPU12 will suspend data stream storing processing, and will display the newest data stream on character representation section 2a of a display 2 among the data streams stored in the predetermined field of RAM16 (122).

[0037] In this condition, whenever it carries out the depression of the "BACK" key of the key input section 3, a data stream is displayed one by one in order of the reverse of the storing sequence of a data stream. This actuation is performed until the data stream of the maximum old things is displayed. Moreover, in this condition, if the depression of the "NO/CLR" key is carried out, the data stream currently then displayed on the display 2 will be eliminated from on RAM16, and the following data stream will be displayed. The data stream which becomes unnecessary among the data streams stored in the predetermined field of RAM16 by this actuation can be eliminated, and it can leave only the data stream to need to RAM16 (123).

[0038] Next, if an operator does the depression of the "YES/=" key, CPU12 will detect this (124). And it checks whether the data stream left behind to the predetermined field of RAM16 exists. The message which means this purport when a data stream does not exist is displayed, and on the other hand, when a data stream exists, these data streams are written in IC card 7 one by one (125).

[0039] Next, the signal-processing machine 1 explains the 2nd example of the procedure of storing in IC card 7 the data stream which received from the television receiver 40, with reference to drawing 10 .

[0040] When the inputted personal identification number and the personal identification number stored in IC card 7 are in agreement like the 1st above mentioned example, while displaying the message which shows that the personal identification number of CPU12 corresponds, it waits to press a "YES/=" key following the ten key (1 or 2) of the key input section 3, and it (130).

[0041] In this condition, if the key concerned is pressed, the lightwave signal transmitted to the signal-processing machine 1 from the television receiver 40 will be received from a light sensing portion 10 (131), and the data stream obtained by this will be indicated by sequential at a display 2 (132).

[0042] And if the depression of the "YES/=" key is carried out in this condition (133), it stores in the predetermined field of RAM16 which builds in the data stream currently displayed at that event (134).

[0043] Storing processing is suspended, when the ten key "1" is pushed in previous ten key depression processing at this time and a memory area predetermined by the data stream which received fills. Moreover, when the ten key "2" is pushed, a postscript is added, eliminating the data stream of the maximum old things among the data streams in the field concerned, when a predetermined field fills.

[0044] Moreover, if CPU12 detects that "NO/CLR" was pushed in the midst of such data stream storing processing, CPU12 will suspend data stream storing processing, and will display the newest data stream on character representation section 2a of a display 2 among the data streams stored in the predetermined field of RAM16 (135).

[0045] In this condition, whenever it carries out the depression of the "BACK" key of the key input section 3, a data stream is displayed one by one in order of the reverse of the storing sequence of a data stream. This actuation is performed until the data stream of the maximum old things is displayed. Moreover, in this condition, if the depression of the "NO/CLR" key is carried out, the data stream currently displayed on the display 2 will be eliminated from on RAM16, and the following data stream will be then displayed. The data stream which becomes unnecessary among the data streams stored in the predetermined field of RAM16 by this actuation can be eliminated, and it can leave only the data stream to need to RAM16 (136).

[0046] Next, if an operator does the depression of the "YES/=" key, CPU12 will detect this (137). And it checks whether the data stream left behind to the predetermined field of

RAM16 exists. The message which means this purport when a data stream does not exist is displayed, and on the other hand, when a data stream exists, these data streams are written in IC card 7 one by one (138).

[0047] The data stream stored in IC card 7 as mentioned above can make a reference according to the following procedures.

[0048] First, in order to end the data stream write-in processing to IC card 7 mentioned above, after finishing each procedure shown in drawing 9 and drawing 10, the "NO/CLR" key is pressed, then "1" of a ten key is pushed, and the depression of the "YES/=" key is carried out continuously.

[0049] If CPU12 of the signal-processing machine 1 detects this, CPU12 will display the message which stimulates a personal identification number input. Collating processing of the personal identification number which used by this the IC card explained previously is performed.

[0050] And from IC card 7, CPU's12 detection of the response data of collating normal performs [ next ] the following card access processings, as shown in drawing 11 (139).

[0051] That is, a data stream read-out instruction is first transmitted to IC card 7. IC card 7 will judge whether the data stream stored in self exists, if the data stream read-out instruction from the signal-processing machine 1 is received. And when a data stream does not exist, the response data in which this is shown are outputted to the signal-processing machine 1. Moreover, when a data stream exists, the sequential output of the existing data stream is carried out. or [ that the response data from an IC card of CPU12 of the signal-processing machine 1 are a data stream ] -- other than this, or is judged. If it is a data stream, this will be stored in RAM16 one by one, and the newest data stream will be displayed on a display 2. Moreover, if it is not a data stream, the message of a purport by which the data stream is not stored in IC card 7 will be displayed on a display 2.

[0052] This data can perform data stream check / elimination processing in RAM16 mentioned above if needed, can perform edit processing of checking the necessity of a data stream (140), and when an operator does the depression of the "YES/=" key after this, it can write it in IC card 7 according to the procedure which mentioned above (141) and the updated data stream group (142). In addition, the personal identification number described previously may be omitted, an IC card may be inserted at the event of A in drawing 10, and information may be written in.

[0053] As explained above, in IC card 7 (ROM), the data stream which received from the outside with the signal-processing machine 1 is stored by signal reception and data stream write-in processing. On the other hand, in the IC card, a possessor's name, a date of birth, sex, an address, etc. are stored as possessor information.

[0054] Hereafter, an example in case a card possessor receives service at a store etc. using above-mentioned IC card 7 is explained.

[0055] For example, as a card possessor carries IC card 7 at a store etc. and shows drawing 12, when receiving service using the signal-processing machine 1 and bar code reader 50 grade with which the store was equipped and which were mentioned above, the signal-processing machine 1 which the possessor itself owns may be brought at a store etc., and service may be received.

[0056] Moreover, it is possible for a card possessor to carry only IC card 7, and to insert IC card 7 in the IC card insertion opening 5 of the information display 60 of dedication as shown in drawing 13 with which the store is equipped, to display the data inside a card on a display 2, and to receive the same service. In addition, an information display 60 is a non-portable type, and possesses the optical scan section 61 for reading a bar code. It will be displayed if read in and corresponding service information are recorded on IC card 7 in the bar code printed now by goods.

[0057] Furthermore, it is also possible to form the information airline printer 70 of dedication as shown in drawing 14 in a store, to insert IC card 7 in the IC card insertion



opening 5 of the information airline printer 70, to make a display 2 print the data inside a card in a display and a receipt 71, and to receive the same service. In a bar code and an alphabetic character, service information is printed in a receipt 71 and it can use for it as a service ticket as it is.

[0058] Below, a possessor carries IC card 7 at a store etc., and the case where the signal-processing machine 1 receives service is explained using drawing 15.

[0059] By carrying out the depression of the "ON/OFF" switch of the front face of the signal-processing machine 1, a card possessor applies starting of this processing machine, and performs activation, card insertion processing, and personal identification number collating processing of the signal-processing machine 1 by the approach explained by drawing 7 and drawing 8.

[0060] And when personal identification number collating is materialized, CPU12 waits to press a "YES/=" key following the ten key of the signal-processing machine 1, and it (201).

[0061] If a data stream read-out instruction will be transmitted to IC card 7 if CPU12 in the signal-processing machine 1 detects that the "YES/=" key was inputted after the key (for example, the "3" keys) for displaying the data stream in a card is inputted in this condition, and IC card 7 receives this, it will judge whether the data stream stored in own EEPROM is stored. And when the response data in which this is shown when a data stream does not exist are outputted to the signal-processing machine 1 and a data stream exists, a data stream is outputted to the signal-processing machine 1 one by one (202).

[0062] or [ that the response data from IC card 7 of CPU12 of a signal-processing machine are a data stream ] -- other than this, or is judged. And if it is a data stream, this will be stored in RAM16 one by one, and the newest data stream will be displayed on a display 2. On the other hand, if it is not a data stream, the message which shows that the data stream is not stored in IC card 7 will be displayed. A card possessor displays on a display 2 after this the data stream about the information which is going to receive service by pressing the "BACK" key or the "NEXT" key (203).

[0063] A card possessor does the depression of the "YES/=" key, after inputting the key which specifies service in the place which displayed the data stream about the service which it is going to receive at the store concerned (204).

[0064] The signal-processing machine 1 transmits the read-out instruction of possessor information to IC card 7, after detecting this. If this instruction is received, IC card 7 judges whether the possessor information stored in own EEPROM exists, and when it exists, it will output it to the signal-processing machine 1 by using possessor information corresponding to the pressed key as response data (205).

[0065] If the signal-processing machine 1 receives this, after compounding the received possessor information data (206), it will change into bar code data (207), and will be displayed on bar code display 2b of a display 2 as the data stream currently displayed on the display 2 (208).

[0066] In this condition, a salesclerk reads the bar code data displayed on bar code display 2b using a bar code reader 50 (209).

[0067] The read bar code data are stored after transmitting to the terminal of inside of a shop, they process the content of service which the data stream contained in the data concerned shows, and also can read the possessor information (a name, age, sex, etc.) concerning a carrier beam IC card possessor in service from an IC card simultaneously, and can accumulate this.

[0068] Using the above-mentioned possessor information, in the firm which offers the store concerned or service, customer information can be accumulated efficiently and can be managed.

[0069] Although possessor information at large was read from IC card 7 and compounded with the data stream in the above-mentioned example, it is also possible to create the

content of service in the possessor information received from IC card 7 based on for example, sex information.

[0070] For example, from the sex information within the possessor information read from the IC card, a discount rate is calculated (206), this is changed into bar code data (207), and it is displayed on bar code display 2b as the data stream currently displayed on the display (208). As for this, in the case of a woman, a discount rate is subtracted 30%, and, in the case of a male, it is the case where it considers as length etc. 20%.

[0071] Moreover, an IC card possessor stores the content of carrier beam service in EEPROM of an IC card as service hysteresis, and the example in the case of using this for subsequent services is shown.

[0072] If the depression of the "YES/=" key is carried out after inputting the key which specifies (203) and this service in the place where the data stream about the service which a card possessor is going to receive at the store concerned was displayed, the signal-processing machine 1 will transmit the read-out instruction of the service hysteresis information corresponding to the data stream currently displayed on the current display 2 to IC card 7, after detecting this (204) (205).

[0073] If this instruction is received, IC card 7 judges whether the hysteresis information corresponding to the service displayed on the display 2 among the service hysteresis information stored in own EEPROM exists, and when it exists, it will output it to the signal-processing machine 1 by using this hysteresis information as response data.

[0074] If hysteresis information is received as response data, the signal-processing machine 1 will create the content of this service based on the count which used the service concerned in the past (206), will change it into bar code data (207), and will be displayed on bar code display 2b (208). This is the case where a discount rate is increased for example, according to the count of utilization etc., and whenever it had received one service in the past, more specifically, it calculates increasing a discount rate by a unit of 3% etc. On the contrary, when at least one piece of hysteresis information on service that the same service was received even once in the past and that it case namely, corresponds exists, a discount rate can be set to 0, and this can also be changed and displayed on bar code data.

[0075] Moreover, the example in the case of storing the information (it being called types-of-services information) which shows the grade of the service which a possessor can receive in EEPROM of IC card 7 is shown.

[0076] If the depression of the "YES/=" key is carried out after inputting the key which specifies (203) and this service in the place where the data stream about the service which a card possessor is going to receive at the store concerned was displayed, the signal-processing machine 1 will transmit the read-out instruction of the types-of-services information corresponding to the data stream currently displayed on the current display 2 to IC card 7, after detecting this (204) (205).

[0077] If this instruction is received, IC card 7 judges whether the types-of-services information stored in own EEPROM exists, and when it exists, it will output it to a signal-processing machine by using this information as response data.

[0078] If the signal-processing machine 1 receives this, the content of service will be created using the received types-of-services information (206), and it will change into bar code data (207), and will be displayed on bar code display 2b as the data stream currently displayed on the display 2 (208). The content of service processes making a discount rate high etc. to the high types-of-services information on grade. Or possessor information is simultaneously read from the IC card, and the content of service may be created combining the sex information and types-of-services information within possessor information.

[0079] Thus, it reads from IC card 7, and about the class of information used as the object by which operation composition is carried out with the data stream displayed on the

display 2, it may be determined by the key which specifies the service inputted at the above-mentioned step 204, and the target information is prescribed by the content beforehand included in a data stream, and the signal processing machine 1 can also process automatically according to this.

[0080] Moreover, the additional writing of the content of carrier beam service is carried out as service hysteresis by the above at EEPROM in IC card 7. After [ which is depended on a bar code reader 50 ] reading (209), the key (for example, ten key 5) which specifies a service personal history lump is inputted, and this is performed by ordering the writing of the data of a display 2 from (210) and the signal-processing machine 1 to IC card 7, when a "YES/=" key is pressed (211).

[0081] Or after service information is disseminated with the serial data based on a lightwave signal, receives by the electric eye 4 of the signal-processing machine 1 and changes this into an electrical signal from the terminal to which the bar code reader 50 is connected, you may perform by sending a write instruction to IC card 7.

[0082] Drawing 16 shows the example of signal-processing machine 1a of a deferment mold as other examples, and the data stream transmitted from the television receiver 40 in this case receives with the cable connected to a direct receiver and an electric target. This equipment can be shared with decoders, such as CATV, and IC card 7 can also be constituted so that the role of the key (key for removing a scramble) for enabling a decoding function may be played. In this case, it is possible to write automatically the score information which inserts an IC card in signal-processing machine 1a of a deferment mold, and is transmitted from CATV in IC card 7.

[0083] Drawing 17 shows the example (in this example, it is called a two-way communication mold signal processor) of signal-processing machine 1c which established the access mechanism over IC card 7 to the remote control unit for operating the television receiver 40 by remote control.

[0084] In addition, in signal-processing machine 1c of this example, the "\*" key and the "#" key which were prepared in the front face are equivalent to the "YES/=" key of the signal-processing machine 1 and the "NO/CLR" key which were mentioned above, respectively. Moreover, the information which a part of CRT (for example, lower right part of CRT) of the television receiver 40 substitutes for a display 2, and you want to display is displayed on a part of CRT of the television receiver 40.

[0085] By this signal-processing machine 1c, an electric eye 4 is turned to the television receiver 40, and a lightwave signal is received, and it is possible to turn, send out and display the received data on the television receiver 40 from photogenic organ 4c, and the data received to the television receiver 40 are displayed, required data are chosen, and it writes in IC card 7.

[0086] Moreover, when writing the above-mentioned information in IC card 7 in the above example, the data received only when the signal-processing machine 1 compared carrier beam date time information from the date time of day and the television receiver 40 which oneself generates and it was this time of day can be judged to be just data, and it can also constitute so that write-in processing may be performed.

[0087] Thereby, television information is reproduced on a video tape and it becomes impossible to forge information.

[0088] Moreover, a service provider can grasp simultaneously whether it becomes information with more effective providing which program with score information by saving the program information about the program which acquired information at IC card 7. In this case, an information provider can acquire the individual humanity news (what kind of man) saved at IC card 7, and the information what kind of program he was watching when, and becomes possible [ acquiring simultaneously the information whether it is a thing with sufficient offering score information in which program with the information of the person using score information ].

[0089] Furthermore, although the example which acquired information from light or an electrical signal was explained, it can also constitute from an above-mentioned example so that information may be acquired, for example from sounds, such as a radio broadcasting or television broadcasting. Moreover, the other sounds of light are sufficient as the means of signal transduction.

[0090] In addition, of course in each above-mentioned example, it can change suitably about the class of key of the key input section 3 of the signal-processing machine 1, or the approach of data processing. Moreover, light besides an alphabetic character and a bar code, a sound, and an electric wave are sufficient as an informational output.

[0091]

[Effect of the Invention] As explained above, according to the portable information processor and the information processing system of this invention, it becomes possible to deal with informational offer, recovery, etc. which were being conventionally performed using papers, such as a discount coupon, as an electric signal, and more information can be processed more efficiently.

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## TECHNICAL FIELD

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[Industrial Application] This invention relates to a portable information processor and information processing system, and relates to the portable information processor and the information processing system for processing the dealings information about the discount information on the price of a goods sale or service offer etc. especially.

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## PRIOR ART

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[Description of the Prior Art] From the former, the information about the discount of the price of a goods sale or service offer is circulated as the so-called discount coupon etc. to the wrap announcement of a journal or a newspaper etc., and the dealings gestalt which discounts a special price is known only to the customer who brought this coupon etc., for example.

[0003] Moreover, in such a dealings gestalt, acquiring customer information is also performed by making a customer's address, a name, etc. write to a discount coupon etc., and collecting these.

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## EFFECT OF THE INVENTION

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[Effect of the Invention] As explained above, according to the portable information processor and the information processing system of this invention, it becomes possible to deal with informational offer, recovery, etc. which were being conventionally performed using papers, such as a discount coupon, as an electric signal, and more information can be processed more efficiently.

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## TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] As mentioned above, in the former, informational offer, recovery, etc. are performed using papers, such as a discount coupon, and there is a problem that the processing takes time and effort.

[0005] This invention coped with this conventional situation, was made, and tends to offer the portable information processor and the information processing system which can process information efficiently compared with the former.

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## MEANS

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[Means for Solving the Problem] A receiving means by which a non-contact method receives the information to which the information processor in which a cellular phone according to claim 1 is possible is sent from the receiving set which receives a broadcast signal, A storage means to memorize the information received with this receiving means, and an acceptance means to receive the card which contained memory, It is characterized by providing a selection means to choose the information memorized for the above-mentioned storage means, and the write-in means which writes the information chosen by the above-mentioned selection means in the memory of the card received with the above-mentioned acceptance means.

[0007] A receiving means by which a non-contact method receives the information to which the information processor in which a cellular phone according to claim 2 is possible is sent from the receiving set which receives a broadcast signal, A storage means to memorize the information received with this receiving means, and an acceptance means to receive the card which contained memory, With this acceptance means A selection means to choose the information memorized by the memory of the information memorized for the write-in read-out means which reads information from the writing of the information memorized for the above-mentioned storage means, and the memory of a card to the memory of the received card, and the above-mentioned storage means, and a card, It is characterized by providing a display means to display the information chosen by the above-mentioned selection means.

[0008] In the information processor which the information processor in which a cellular phone according to claim 3 is possible can carry [ according to claim 2 ], the above-mentioned display means is characterized by displaying the information corresponding to an alphabetic character as a mark in which machine read is possible while it carries out character representation of the information.

[0009] In the information processor in which a cellular phone according to claim 3 is possible, the information processor in which a cellular phone according to claim 4 is possible has a display selection means to choose whether an alphabetic character is displayed with the above-mentioned display means, or a mark is displayed, and is characterized by performing character representation or a mark display based on the selection result of this display selection means.

[0010] A receiving means by which a non-contact method receives the information to which information processing system according to claim 5 is sent from the receiving set which receives a broadcast signal, A storage means to memorize the information received with this receiving means, and a selection means to choose the information memorized for the above-mentioned storage means, It is characterized by to consist of the 2nd equipment possessing the 1st equipment which has a display means display the information chosen by the above-mentioned selection means, a reading means read the information currently displayed by the above-mentioned display means, and a means perform dealings based on the information read with this reading means.

[0011] A receiving means by which a non-contact method receives the information to which information processing system according to claim 6 is sent from the receiving set which receives a broadcast signal, A storage means to memorize the information received with this receiving means, and a selection means to choose the information memorized for the above-mentioned storage means, The 1st equipment which has an acceptance means to receive the card which contained memory, and the write-in means which writes in the information chosen as the memory of the card received with this acceptance means by the above-mentioned selection means, It is characterized by consisting of the 2nd equipment possessing a reading means to read the information memorized by the memory of the above-mentioned card, and a means to perform dealings based on the information read with this reading means.

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## OPERATION

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[Function] According to the portable information processor and the information processing system of the above-mentioned configuration, it becomes possible to deal with informational offer, recovery, etc. which were being conventionally performed using papers, such as a discount coupon, as an electric signal, and more information can be processed more efficiently.

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## EXAMPLE

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[Example] Hereafter, the detail of this invention is explained about an example with reference to a drawing.

[0014] As drawing 1 - drawing 3 show the appearance configuration of the signal-processing machine 1 as an information processor which can carry this example and show it in these drawings, the display 2 which consists of a liquid crystal display etc., and the key input section 3 are formed in the front face of the signal-processing machine 1, and the electric eye 4 and the IC card insertion opening 5 grade are prepared in the lateral portion. In addition, 6 is a battery holder and 7 is an IC card.

[0015] Moreover, bar code display 2b which displays information as character representation section 2a displayed in an alphabetic character, a figure, etc. by the bar code is prepared in the above-mentioned display 2.

[0016] Drawing 4 shows the functional configuration of the above-mentioned signal-processing machine 1. As shown in this drawing, the signal-processing machine 1 While memorizing temporarily the light sensing portion 10 for receiving the lightwave signal from the outside, the photoelectrical converter 11 which changes the light which received into an electrical signal, ROM15 which stores the program of CPU12 and CPU12 which control many functions of this signal-processing inside of a plane of operation, and the processing result in the case of program actuation Activity hysteresis and proper information on RAM16 for memorizing the signal from a light sensing portion 10, and a signal-processing machine, For example, the count of writing and content to an IC card, Possessor information etc. It consists of the contacts 18, the keyboards 19, and dc-battery 20 grades for performing the driver 14 for displaying data on LCD13 and LCD13 for displaying the content of EEPROM17 and RAM16 for recording etc., and electrical installation with IC card 7.

[0017] Drawing 5 shows the appearance configuration of IC card 7, and IC cards 7 are the IC module 30 which contained CPU, a magnetic stripe 31, and a card which has an embossed character 32. As shown in drawing 2 and drawing 3 , the signal-processing machine 1 has become as [ insert / such IC card 7 ], inserts IC card 7 in the signal-processing machine 1, and it is constituted through the contact 33 of IC card 7 so that the data of IC card 7 can be written.

[0018] Moreover, as shown in drawing 6 , the signal-processing machine 1 receives the serial data based on the lightwave signal 41 transmitted from CRT of the television receiver 40 by the electric eye 4 of the signal-processing machine 1, and it is constituted so that this information can be stored in IC card 7 by request, while changing this into an electrical signal and memorizing it.

[0019] In addition, the lightwave signal emitted from the television receiver 40 modulates the brightness or color of a television picture, is emitted, and has as information the score information given to a viewer, the date time information, program information, etc., for example.

[0020] Next, the activation procedure of the signal-processing machine 1 is explained with reference to drawing 7 .

[0021] An operator starts first by carrying out the depression of the "ON/OFF" switch formed in the key input section 3 of the front face of the signal-processing machine 1. At this time, CPU12 requires starting by supplying a power source from the internal dc-battery held in the battery holder 6 by the depression of the switch concerned, and initializes a circumference component first (101), and a self-test check is performed with this (102).

[0022] When it is judged that this time is unusual, the message which shows abnormalities is displayed on LCD13 (103).

[0023] On the other hand, when it is judged that it is normal, the message it is directed that inserts an IC card is displayed, and it will be in the state waiting for IC card insertion (104).

[0024] When IC card 7 is inserted in this condition, the initial response data which CPU12 detects this, activates IC card 7, and are transmitted from IC card 7 are received (105).

[0025] And with reference to the received initial response data, it judges whether inserted IC card 7 is an adaptation card (106).

[0026] When the initial response data not suiting are not able to be received or initial response data are not able to be received, the message which means card nonconformance is received and electrical signal supply on a card is suspended (107). And signal-processing machine 1 self stops and it returns to the condition before activation of this processing machine.

[0027] Next, the procedure which collates an operator's personal identification number is explained with reference to drawing 8 using inserted IC card 7.

[0028] First, CPU12 displays the message for inputting a personal identification number into the signal-processing machine 1, and will be in the state waiting for a password input (110).

[0029] According to this, an operator inputs an own personal identification number using the ten key formed in the key input section 3 of the front face of the signal-processing machine 1. CPU12 will require password collating by transmitting this personal identification number to IC card 7 connected, if this is detected. If this demand is received, IC card 7 will compare the personal identification number stored in the interior of a card with the inputted personal identification number, and will output that comparison result to a signal-processing machine (111).

[0030] When the comparison result was received from IC card 7, a comparison result is first judged from response data, the personal identification number stored in the IC card 7 interior and the inputted personal identification number are in agreement and collating is judged to be normal, the signal-processing machine 1 performs a display to that effect, and performs the next processing mentioned later (112).

[0031] When the response data in which an inequality is shown are detected as a result of the above-mentioned decision, while, displaying the message of a personal identification number inequality on the other hand, the message which stimulates a personal identification number input is displayed again (113). Moreover, when response data mean having exceeded the count of allowance of the inequality of the personal identification number concerned, this card suspends the electrical signal supply to IC card 7 while displaying the message which shows an unusable thing (114).

[0032] Next, the signal-processing machine 1 explains the 1st example of the procedure of storing in IC card 7 the data stream which received from the television receiver 40, with reference to drawing 9.

[0033] As mentioned above, when the inputted personal identification number and the personal identification number stored in the IC card 7 interior are in agreement in collating processing of a personal identification number, CPU12 performs a display to that effect, and waits to press a "YES/=" key after this following the ten key (1 or 2) of the key input section 3, and it (120).

[0034] In this condition, if the key concerned is pressed, the lightwave signal transmitted to the signal-processing machine 1 from the television receiver 40 will be received from a light sensing portion 10, and sequential storing of the data stream obtained by this will be carried out to the predetermined field of RAM16 to build in (121).

[0035] Storing processing is suspended, when the ten key "1" is pushed in previous ten key depression processing at this time and a memory area predetermined by the data stream which received fills. Moreover, when the ten key "2" is pushed, a postscript is added, eliminating the data stream of the maximum old things among the data streams in the field concerned, when a predetermined field fills.

[0036] And if CPU12 detects that "NO/CLR" was pushed in the midst of such data stream storing processing, CPU12 will suspend data stream storing processing, and will display the newest data stream on character representation section 2a of a display 2 among the data streams stored in the predetermined field of RAM16 (122).

[0037] In this condition, whenever it carries out the depression of the "BACK" key of the key input section 3, a data stream is displayed one by one in order of the reverse of the storing sequence of a data stream. This actuation is performed until the data stream of the maximum old things is displayed. Moreover, in this condition, if the depression of the "NO/CLR" key is carried out, the data stream currently then displayed on the display 2 will be eliminated from on RAM16, and the following data stream will be displayed. The data stream which becomes unnecessary among the data streams stored in the predetermined field of RAM16 by this actuation can be eliminated, and it can leave only the data stream to need to RAM16 (123).

[0038] Next, if an operator does the depression of the "YES/=" key, CPU12 will detect this (124). And it checks whether the data stream left behind to the predetermined field of RAM16 exists. The message which means this purport when a data stream does not exist is displayed, and on the other hand, when a data stream exists, these data streams are written in IC card 7 one by one (125).

[0039] Next, the signal-processing machine 1 explains the 2nd example of the procedure of storing in IC card 7 the data stream which received from the television receiver 40, with reference to drawing 10.

[0040] When the inputted personal identification number and the personal identification number stored in IC card 7 are in agreement like the 1st above mentioned example, while displaying the message which shows that the personal identification number of CPU12 corresponds, it waits to press a "YES/=" key following the ten key (1 or 2) of the key input section 3, and it (130).

[0041] In this condition, if the key concerned is pressed, the lightwave signal transmitted to the signal-processing machine 1 from the television receiver 40 will be received from a light sensing portion 10 (131), and the data stream obtained by this will be indicated by sequential at a display 2 (132).

[0042] And if the depression of the "YES/=" key is carried out in this condition (133), it stores in the predetermined field of RAM16 which builds in the data stream currently displayed at that event (134).

[0043] Storing processing is suspended, when the ten key "1" is pushed in previous ten key depression processing at this time and a memory area predetermined by the data stream which received fills. Moreover, when the ten key "2" is pushed, a postscript is added, eliminating the data stream of the maximum old things among the data streams in the field concerned, when a predetermined field fills.

[0044] Moreover, if CPU12 detects that "NO/CLR" was pushed in the midst of such data stream storing processing, CPU12 will suspend data stream storing processing, and will display the newest data stream on character representation section 2a of a display 2 among the data streams stored in the predetermined field of RAM16 (135).

[0045] In this condition, whenever it carries out the depression of the "BACK" key of the



key input section 3, a data stream is displayed one by one in order of the reverse of the storing sequence of a data stream. This actuation is performed until the data stream of the maximum old things is displayed. Moreover, in this condition, if the depression of the "NO/CLR" key is carried out, the data stream currently displayed on the display 2 will be eliminated from on RAM16, and the following data stream will be then displayed. The data stream which becomes unnecessary among the data streams stored in the predetermined field of RAM16 by this actuation can be eliminated, and it can leave only the data stream to need to RAM16 (136).

[0046] Next, if an operator does the depression of the "YES/=" key, CPU12 will detect this (137). And it checks whether the data stream left behind to the predetermined field of RAM16 exists. The message which means this purport when a data stream does not exist is displayed, and on the other hand, when a data stream exists, these data streams are written in IC card 7 one by one (138).

[0047] The data stream stored in IC card 7 as mentioned above can make a reference according to the following procedures.

[0048] First, in order to end the data stream write-in processing to IC card 7 mentioned above, after finishing each procedure shown in drawing 9 and drawing 10, the "NO/CLR" key is pressed, then "1" of a ten key is pushed, and the depression of the "YES/=" key is carried out continuously.

[0049] If CPU12 of the signal-processing machine 1 detects this, CPU12 will display the message which stimulates a personal identification number input. Collating processing of the personal identification number which used by this the IC card explained previously is performed.

[0050] And from IC card 7, CPU's12 detection of the response data of collating normal performs [ next ] the following card access processings, as shown in drawing 11 (139).

[0051] That is, a data stream read-out instruction is first transmitted to IC card 7. IC card 7 will judge whether the data stream stored in self exists, if the data stream read-out instruction from the signal-processing machine 1 is received. And when a data stream does not exist, the response data in which this is shown are outputted to the signal-processing machine 1. Moreover, when a data stream exists, the sequential output of the existing data stream is carried out. or [ that the response data from an IC card of CPU12 of the signal-processing machine 1 are a data stream ] -- other than this, or is judged. If it is a data stream, this will be stored in RAM16 one by one, and the newest data stream will be displayed on a display 2. Moreover, if it is not a data stream, the message of a purport by which the data stream is not stored in IC card 7 will be displayed on a display 2.

[0052] This data can perform data stream check / elimination processing in RAM16 mentioned above if needed, can perform edit processing of checking the necessity of a data stream (140), and when an operator does the depression of the "YES/=" key after this, it can write it in IC card 7 according to the procedure which mentioned above (141) and the updated data stream group (142). In addition, the personal identification number described previously may be omitted, an IC card may be inserted at the event of A in drawing 10, and information may be written in.

[0053] As explained above, in IC card 7 (ROM), the data stream which received from the outside with the signal-processing machine 1 is stored by signal reception and data stream write-in processing. On the other hand, in the IC card, a possessor's name, a date of birth, sex, an address, etc. are stored as possessor information.

[0054] Hereafter, an example in case a card possessor receives service at a store etc. using above-mentioned IC card 7 is explained.

[0055] For example, as a card possessor carries IC card 7 at a store etc. and shows drawing 12, when receiving service using the signal-processing machine 1 and bar code reader 50 grade with which the store was equipped and which were mentioned above, the signal-processing machine 1 which the possessor itself owns may be brought at a store etc., and

service may be received.

[0056] Moreover, it is possible for a card possessor to carry only IC card 7, and to insert IC card 7 in the IC card insertion opening 5 of the information display 60 of dedication as shown in drawing 13 with which the store is equipped, to display the data inside a card on a display 2, and to receive the same service. In addition, an information display 60 is a non-portable type, and possesses the optical scan section 61 for reading a bar code. It will be displayed if read in and corresponding service information are recorded on IC card 7 in the bar code printed now by goods.

[0057] Furthermore, it is also possible to form the information airline printer 70 of dedication as shown in drawing 14 in a store, to insert IC card 7 in the IC card insertion opening 5 of the information airline printer 70, to make a display 2 print the data inside a card in a display and a receipt 71, and to receive the same service. In a bar code and an alphabetic character, service information is printed in a receipt 71 and it can use for it as a service ticket as it is.

[0058] Below, a possessor carries IC card 7 at a store etc., and the case where the signal-processing machine 1 receives service is explained using drawing 15.

[0059] By carrying out the depression of the "ON/OFF" switch of the front face of the signal-processing machine 1, a card possessor applies starting of this processing machine, and performs activation, card insertion processing, and personal identification number collating processing of the signal-processing machine 1 by the approach explained by drawing 7 and drawing 8.

[0060] And when personal identification number collating is materialized, CPU12 waits to press a "YES/=" key following the ten key of the signal-processing machine 1, and it (201).

[0061] If a data stream read-out instruction will be transmitted to IC card 7 if CPU12 in the signal-processing machine 1 detects that the "YES/=" key was inputted after the key (for example, the "3" keys) for displaying the data stream in a card is inputted in this condition, and IC card 7 receives this, it will judge whether the data stream stored in own EEPROM is stored. And when the response data in which this is shown when a data stream does not exist are outputted to the signal-processing machine 1 and a data stream exists, a data stream is outputted to the signal-processing machine 1 one by one (202).

[0062] or [ that the response data from IC card 7 of CPU12 of a signal-processing machine are a data stream ] -- other than this, or is judged. And if it is a data stream, this will be stored in RAM16 one by one, and the newest data stream will be displayed on a display 2. On the other hand, if it is not a data stream, the message which shows that the data stream is not stored in IC card 7 will be displayed. A card possessor displays on a display 2 after this the data stream about the information which is going to receive service by pressing the "BACK" key or the "NEXT" key (203).

[0063] A card possessor does the depression of the "YES/=" key, after inputting the key which specifies service in the place which displayed the data stream about the service which it is going to receive at the store concerned (204).

[0064] The signal-processing machine 1 transmits the read-out instruction of possessor information to IC card 7, after detecting this. If this instruction is received, IC card 7 judges whether the possessor information stored in own EEPROM exists, and when it exists, it will output it to the signal-processing machine 1 by using possessor information corresponding to the pressed key as response data (205).

[0065] If the signal-processing machine 1 receives this, after compounding the received possessor information data (206), it will change into bar code data (207), and will be displayed on bar code display 2b of a display 2 as the data stream currently displayed on the display 2 (208).

[0066] In this condition, a salesclerk reads the bar code data displayed on bar code display 2b using a bar code reader 50 (209).

[0067] The read bar code data are stored after transmitting to the terminal of inside of a shop, they process the content of service which the data stream contained in the data concerned shows, and also can read the possessor information (a name, age, sex, etc.) concerning a carrier beam IC card possessor in service from an IC card simultaneously, and can accumulate this.

[0068] Using the above-mentioned possessor information, in the firm which offers the store concerned or service, customer information can be accumulated efficiently and can be managed.

[0069] Although possessor information at large was read from IC card 7 and compounded with the data stream in the above-mentioned example, it is also possible to create the content of service in the possessor information received from IC card 7 based on for example, sex information.

[0070] For example, from the sex information within the possessor information read from the IC card, a discount rate is calculated (206), this is changed into bar code data (207), and it is displayed on bar code display 2b as the data stream currently displayed on the display (208). As for this, in the case of a woman, a discount rate is subtracted 30%, and, in the case of a male, it is the case where it considers as length etc. 20%.

[0071] Moreover, an IC card possessor stores the content of carrier beam service in EEPROM of an IC card as service hysteresis, and the example in the case of using this for subsequent services is shown.

[0072] If the depression of the "YES/=" key is carried out after inputting the key which specifies (203) and this service in the place where the data stream about the service which a card possessor is going to receive at the store concerned was displayed, the signal-processing machine 1 will transmit the read-out instruction of the service hysteresis information corresponding to the data stream currently displayed on the current display 2 to IC card 7, after detecting this (204) (205).

[0073] If this instruction is received, IC card 7 judges whether the hysteresis information corresponding to the service displayed on the display 2 among the service hysteresis information stored in own EEPROM exists, and when it exists, it will output it to the signal-processing machine 1 by using this hysteresis information as response data.

[0074] If hysteresis information is received as response data, the signal-processing machine 1 will create the content of this service based on the count which used the service concerned in the past (206), will change it into bar code data (207), and will be displayed on bar code display 2b (208). This is the case where a discount rate is increased for example, according to the count of utilization etc., and whenever it had received one service in the past, more specifically, it calculates increasing a discount rate by a unit of 3% etc. On the contrary, when at least one piece of hysteresis information on service that the same service was received even once in the past and that it case namely, corresponds exists, a discount rate can be set to 0, and this can also be changed and displayed on bar code data.

[0075] Moreover, the example in the case of storing the information (it being called types-of-services information) which shows the grade of the service which a possessor can receive in EEPROM of IC card 7 is shown.

[0076] If the depression of the "YES/=" key is carried out after inputting the key which specifies (203) and this service in the place where the data stream about the service which a card possessor is going to receive at the store concerned was displayed, the signal-processing machine 1 will transmit the read-out instruction of the types-of-services information corresponding to the data stream currently displayed on the current display 2 to IC card 7, after detecting this (204) (205).

[0077] If this instruction is received, IC card 7 judges whether the types-of-services information stored in own EEPROM exists, and when it exists, it will output it to a signal-processing machine by using this information as response data.

[0078] If the signal-processing machine 1 receives this, the content of service will be created using the received types-of-services information (206), and it will change into bar code data (207), and will be displayed on bar code display 2b as the data stream currently displayed on the display 2 (208). The content of service processes making a discount rate high etc. to the high types-of-services information on grade. Or possessor information is simultaneously read from the IC card, and the content of service may be created combining the sex information and types-of-services information within possessor information.

[0079] Thus, it reads from IC card 7, and about the class of information used as the object by which operation composition is carried out with the data stream displayed on the display 2, it may be determined by the key which specifies the service inputted at the above-mentioned step 204, and the target information is prescribed by the content beforehand included in a data stream, and the signal processing machine 1 can also process automatically according to this.

[0080] Moreover, the additional writing of the content of carrier beam service is carried out as service hysteresis by the above at EEPROM in IC card 7. After [ which is depended on a bar code reader 50 ] reading (209), the key (for example, ten key 5) which specifies a service personal history lump is inputted, and this is performed by ordering the writing of the data of a display 2 from (210) and the signal-processing machine 1 to IC card 7, when a "YES/=" key is pressed (211).

[0081] Or after service information is disseminated with the serial data based on a lightwave signal, receives by the electric eye 4 of the signal-processing machine 1 and changes this into an electrical signal from the terminal to which the bar code reader 50 is connected, you may perform by sending a write instruction to IC card 7.

[0082] Drawing 16 shows the example of signal-processing machine 1a of a deferment mold as other examples, and the data stream transmitted from the television receiver 40 in this case receives with the cable connected to a direct receiver and an electric target. This equipment can be shared with decoders, such as CATV, and IC card 7 can also be constituted so that the role of the key (key for removing a scramble) for enabling a decoding function may be played. In this case, it is possible to write automatically the score information which inserts an IC card in signal-processing machine 1a of a deferment mold, and is transmitted from CATV in IC card 7.

[0083] Drawing 17 shows the example (in this example, it is called a two-way communication mold signal processor) of signal-processing machine 1c which established the access mechanism over IC card 7 to the remote control unit for operating the television receiver 40 by remote control.

[0084] In addition, in signal-processing machine 1c of this example, the "\*" key and the "#" key which were prepared in the front face are equivalent to the "YES/=" key of the signal-processing machine 1 and the "NO/CLR" key which were mentioned above, respectively. Moreover, the information which a part of CRT (for example, lower right part of CRT) of the television receiver 40 substitutes for a display 2, and you want to display is displayed on a part of CRT of the television receiver 40.

[0085] By this signal-processing machine 1c, an electric eye 4 is turned to the television receiver 40, and a lightwave signal is received, and it is possible to turn, send out and display the received data on the television receiver 40 from photogenic organ 4c, and the data received to the television receiver 40 are displayed, required data are chosen, and it writes in IC card 7.

[0086] Moreover, when writing the above-mentioned information in IC card 7 in the above example, the data received only when the signal-processing machine 1 compared carrier beam date time information from the date time of day and the television receiver 40 which oneself generates and it was this time of day can be judged to be just data, and it can also constitute so that write-in processing may be performed.

[0087] Thereby, television information is reproduced on a video tape and it becomes impossible to forge information.

[0088] Moreover, a service provider can grasp simultaneously whether it becomes information with more effective providing which program with score information by saving the program information about the program which acquired information at IC card 7. In this case, an information provider can acquire the individual humanity news (what kind of man) saved at IC card 7, and the information what kind of program he was watching when, and becomes possible [ acquiring simultaneously the information whether it is a thing with sufficient offering score information in which program with the information of the person using score information ].

[0089] Furthermore, although the example which acquired information from light or an electrical signal was explained, it can also constitute from an above-mentioned example so that information may be acquired, for example from sounds, such as a radio broadcasting or television broadcasting. Moreover, the other sounds of light are sufficient as the means of signal transduction.

[0090] In addition, of course in each above-mentioned example, it can change suitably about the class of key of the key input section 3 of the signal-processing machine 1, or the approach of data processing. Moreover, light besides an alphabetic character and a bar code, a sound, and an electric wave are sufficient as an informational output.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] Drawing showing the appearance configuration of the signal-processing machine of one example of this invention.

[Drawing 2] Drawing showing the appearance configuration of the signal-processing machine of drawing 1 .

[Drawing 3] Drawing showing the appearance configuration of the signal-processing machine of drawing 1 .

[Drawing 4] Drawing showing the block configuration of the signal-processing machine of drawing 1 .

[Drawing 5] Drawing showing the appearance configuration of an IC card.

[Drawing 6] Drawing for explaining information reception.

[Drawing 7] Drawing for explaining the activation of a signal-processing machine.

[Drawing 8] Drawing for explaining collating processing of a signal-processing machine.

[Drawing 9] Drawing for explaining data write-in processing of a signal-processing machine.

[Drawing 10] Drawing for explaining data write-in processing of a signal-processing machine.

[Drawing 11] Drawing for explaining data processing of a signal-processing machine.

[Drawing 12] Drawing for explaining read processing of data.

[Drawing 13] Drawing showing the configuration of an information display.

[Drawing 14] Drawing showing the configuration of an information airline printer.

[Drawing 15] Drawing for explaining data processing of a signal-processing machine.

[Drawing 16] Drawing showing other examples of a signal-processing machine.

[Drawing 17] Drawing showing the example of further others of a signal-processing machine.

[Description of Notations]

1 .... Signal-processing machine

2 .... Display

4 .... Electric eye

5 .... IC card insertion opening

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[Translation done.]

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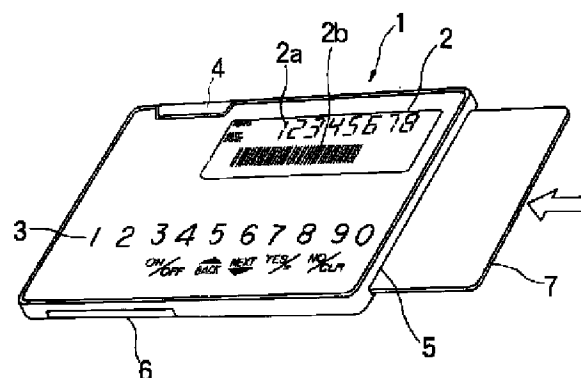
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(54) 【発明の名称】 携帯可能な情報処理装置及び情報処理システム

(57) 【要約】 (修正有)

【目的】 従来に比べて効率的に情報を処理することのできる携帯可能な情報処理装置及び情報処理システムを提供する。

【構成】 信号処理機 1 は、テレビ受信機の CRT から送信される光信号によるシリアルデータを、受光器 4 により受信し、これを電気信号に変換して記憶するとともに、所望によりこの情報を IC カード挿入口 5 に挿入された IC カード 7 に格納可能なように構成されている。



【特許請求の範囲】

【請求項1】 放送信号を受信する受信装置から送られてくる情報を非接触方式で受信する受信手段と、この受信手段により受信した情報を記憶する記憶手段と、メモリを内蔵したカードを受け入れる受け入れ手段と、上記記憶手段に記憶している情報を選択する選択手段と、上記選択手段により選択された情報を上記受け入れ手段により受け入れたカードのメモリに書き込む書き込み手段とを具備したことを特徴とする携帯可能な情報処理装置。

【請求項2】 放送信号を受信する受信装置から送られてくる情報を非接触方式で受信する受信手段と、この受信手段により受信した情報を記憶する記憶手段と、メモリを内蔵したカードを受け入れる受け入れ手段と、この受け入れ手段により受け入れたカードのメモリに上記記憶手段に記憶している情報の書き込み及びカードのメモリからの情報の読み出しを行う書き込み読み出し手段と上記記憶手段に記憶している情報及びカードのメモリに記憶されている情報を選択する選択手段と、上記選択手段により選択された情報を表示する表示手段とを具備したことを特徴とする携帯可能な情報処理装置。

【請求項3】 上記表示手段は情報を文字表示するとともに、文字に対応する情報を機械読取り可能なマークとして表示することを特徴とする請求項2記載の携帯可能な情報処理装置。

【請求項4】 上記表示手段にて文字を表示するかマークを表示するかを選択する表示選択手段を有し、この表示選択手段の選択結果に基づき文字表示若しくはマーク表示を行うことを特徴とする請求項3記載の携帯可能な情報処理装置。

【請求項5】 放送信号を受信する受信装置から送られてくる情報を非接触方式で受信する受信手段と、この受信手段により受信した情報を記憶する記憶手段と、上記記憶手段に記憶している情報を選択する選択手段と、上記選択手段により選択された情報を表示する表示手段とを有する第1の装置と、上記表示手段により表示されている情報を読取る読取手段と、この読取手段により読取った情報に基づき取引を実行する手段とを具備した第2の装置とからなることを特徴とする情報処理システム。

【請求項6】 放送信号を受信する受信装置から送られてくる情報を非接触方式で受信する受信手段と、この受信手段により受信した情報を記憶する記憶手段と、上記記憶手段に記憶している情報を選択する選択手段と、メモリを内蔵したカードを受け入れる受け入れ手段と、この受け入れ手段により受け入れたカードのメモリに上記

選択手段により選択された情報を書き込む書き込み手段とを有する第1の装置と、上記カードのメモリに記憶されている情報を読取る読取手段と、この読取手段により読取った情報に基づき取引を実行する手段とを具備した第2の装置とからなることを特徴とする情報処理システム。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、携帯可能な情報処理装置及び情報処理システムに係り、特に、商品販売あるいは役務提供の価格の割引情報等に関する取引情報を処理するための携帯可能な情報処理装置及び情報処理システムに関する。

【0002】

【従来の技術】従来から、例えば雑誌や新聞の折込み広告等に、商品販売あるいは役務提供の価格の割引に関する情報を、いわゆる割引クーポン券等として流布し、このクーポン券等を持参した顧客に対してのみ、特別な価格の割引を行う取引形態が知られている。

【0003】また、このような取引形態においては、割引クーポン券等に、例えば顧客の住所、氏名等を書かせ、これを回収することによって、顧客情報を得ることも行われている。

【0004】

【発明が解決しようとする課題】上述したように、従来においては、割引クーポン券等の紙を用いて情報の提供及び回収等を行っており、その処理に手間がかかるという問題がある。

【0005】本発明は、かかる従来の事情に対処してなされたもので、従来に比べて効率的に情報を処理することのできる携帯可能な情報処理装置及び情報処理システムを提供しようとするものである。

【0006】

【課題を解決するための手段】請求項1記載の携帯可能な情報処理装置は、放送信号を受信する受信装置から送られてくる情報を非接触方式で受信する受信手段と、この受信手段により受信した情報を記憶する記憶手段と、メモリを内蔵したカードを受け入れる受け入れ手段と、上記記憶手段に記憶している情報を選択する選択手段と、上記選択手段により選択された情報を上記受け入れ手段により受け入れたカードのメモリに書き込む書き込み手段とを具備したことを特徴とする。

【0007】請求項2記載の携帯可能な情報処理装置は、放送信号を受信する受信装置から送られてくる情報を非接触方式で受信する受信手段と、この受信手段により受信した情報を記憶する記憶手段と、メモリを内蔵したカードを受け入れる受け入れ手段と、この受け入れ手段により受け入れたカードのメモリに上記記憶手段に記憶している情報の書き込み及びカードのメモリからの情報の読み出しを行う書き込み読み出し手段と上記記憶手



段に記憶している情報及びカードのメモリに記憶されている情報を選択する選択手段と、上記選択手段により選択された情報を表示する表示手段とを具備したことを特徴とする。

【0008】請求項3記載の携帯可能な情報処理装置は、請求項2記載の携帯可能な情報処理装置において、上記表示手段は情報を文字表示するとともに、文字に対応する情報を機械読取り可能なマークとして表示することを特徴とする。

【0009】請求項4記載の携帯可能な情報処理装置は、請求項3記載の携帯可能な情報処理装置において、上記表示手段にて文字を表示するかマークを表示するかを選択する表示選択手段を有し、この表示選択手段の選択結果に基づき文字表示若しくはマーク表示を行うことを特徴とする。

【0010】請求項5記載の情報処理システムは、放送信号を受信する受信装置から送られてくる情報を非接触方式で受信する受信手段と、この受信手段により受信した情報を記憶する記憶手段と、上記記憶手段に記憶している情報を選択する選択手段と、上記選択手段により選択された情報を表示する表示手段とを有する第1の装置と、上記表示手段により表示されている情報を読取る読取手段と、この読取手段により読取った情報に基づき取引を実行する手段とを具備した第2の装置とからなることを特徴とする。

【0011】請求項6記載の情報処理システムは、放送信号を受信する受信装置から送られてくる情報を非接触方式で受信する受信手段と、この受信手段により受信した情報を記憶する記憶手段と、上記記憶手段に記憶している情報を選択する選択手段と、メモリを内蔵したカードを受け入れる受け入れ手段と、この受け入れ手段により受け入れたカードのメモリに上記選択手段により選択された情報を書き込む書き込み手段とを有する第1の装置と、上記カードのメモリに記憶されている情報を読取る読取手段と、この読取手段により読取った情報に基づき取引を実行する手段とを具備した第2の装置とからなることを特徴とする。

【0012】

【作用】上記構成の携帯可能な情報処理装置及び情報処理システムによれば、従来割引クーポン券等の紙を用いて行っていた情報の提供及び回収等を、電気的な信号として取扱うことが可能となり、より多くの情報をより効率的に処理することができる。

【0013】

【実施例】以下、本発明の詳細を、図面を参照して実施例について説明する。

【0014】図1～図3は、本実施例の携帯可能な情報処理装置としての信号処理機1の外観構成を示すもので、これらの図に示すように、信号処理機1の表面には、液晶表示装置等からなる表示部2と、キー入力部3

が設けられており、側面部には、受光器4、ICカード挿入口5等が設けられている。なお、6は電池収納部、7はICカードである。

【0015】また、上記表示部2には、情報を文字、数字等で表示する文字表示部2aと、バーコードで表示するバーコード表示部2bが設けられている。

【0016】図4は、上記信号処理機1の機能構成を示すものである。同図に示すように、信号処理機1は、外部からの光信号を受信するための受光部10、受信した光を電気信号に変換する光電変換部11、本信号処理機内の諸機能を制御するCPU12、CPU12の動作プログラムを格納するROM15、プログラム動作の際の処理結果を一時的に記憶しておくとともに受光部10からの信号を記憶するためのRAM16、信号処理機の使用履歴及び固有情報、例えば、ICカードへの書込み回数及び内容、所持者情報等を記録するためのEEPROM17、RAM16の内容等を表示するためのLCD13、LCD13にデータを表示するためのドライバ14、ICカード7との電気的接続を行うためのコンタクト18、キーボード19、及びバッテリー20等で構成されている。

【0017】図5は、ICカード7の外観構成を示すもので、ICカード7は、CPUを内蔵したICモジュール30、磁気ストライプ31、エンボス文字32を有するカードである。信号処理機1は、図2、図3に示したように、このようなICカード7を挿入できるようになっており、信号処理機1にICカード7を挿入し、ICカード7の接点33を介して、ICカード7のデータを読み書きすることができるよう構成されている。

【0018】また、信号処理機1は、図6に示すように、テレビ受信機40のCRTから送信される光信号41によるシリアルデータを、信号処理機1の受光器4により受信し、これを電気信号に変換して記憶するとともに、所望によりこの情報をICカード7に格納可能なように構成されている。

【0019】なお、テレビ受信機40より発せられる光信号は、テレビ画像の輝度あるいは色を変調して発せられるもので、情報としては、例えば、視聴者に与えられる得点情報、日付時刻情報、番組情報等がある。

【0020】次に、信号処理機1の活性化手順を、図7を参照して説明する。

【0021】まず操作者は、信号処理機1の表面のキー入力部3に設けられた「ON/OFF」スイッチを押下することにより、起動を行う。このときCPU12は、当該スイッチの押下により電池収納部6に収容された内部バッテリーから電源を供給されることによって起動がかり、まず周辺素子の初期化を行い(101)、これとともに自己診断チェックを行う(102)。

【0022】このとき異常であると判断した場合には、LCD13に異常を示すメッセージを表示する(10

3)。

【0023】一方、正常であると判断した場合には、ICカードを挿入するよう指示するメッセージを表示し、ICカード挿入待ち状態になる(104)。

【0024】この状態においてICカード7が挿入された場合には、CPU12はこれを検出し、ICカード7を活性化してICカード7から送信される初期応答データを受信する(105)。

【0025】そして、受信した初期応答データを参照して、挿入されたICカード7が適合カードであるか否かを判断する(106)。

【0026】もし適合しない初期応答データを受信したり、あるいは初期応答データを受信できなかった場合には、カード不適合を意味するメッセージを受信し、カードへの電気信号供給を停止する(107)。そして、信号処理機1自身が停止し、本処理機の活性化前の状態に戻る。

【0027】次に、挿入されたICカード7を用いて、操作者の暗証番号を照合する手順を図8を参照して説明する。

【0028】まずCPU12は、暗証番号を信号処理機1に入力するためのメッセージを表示し、暗証入力待ち状態になる(110)。

【0029】これに応じて操作者は、信号処理機1の表面のキー入力部3に設けられたテンキーを使用して自身の暗証番号を入力する。CPU12はこれを検知すると、接続されているICカード7に対しこの暗証番号を送信することにより、暗証照合を要求する。ICカード7はこの要求を受信すると、カード内部に格納されている暗証番号と入力された暗証番号とを比較し、その比較結果を信号処理機1に出力する(111)。

【0030】信号処理機1は、ICカード7から比較結果を受信すると、まず応答データから比較結果を判断し、ICカード7内部に格納されている暗証番号と入力された暗証番号とが一致し照合が正常と判断された場合は、その旨の表示を行い、後述する次の処理を行う(112)。

【0031】一方、上記判断の結果、不一致を示す応答データを検知した場合には、暗証番号不一致のメッセージを表示すると共に、再度、暗証番号入力を促すメッセージを表示する(113)。また、応答データが、当該暗証番号の不一致の許容回数を超過したことを意味していた場合には、本カードは使用不可能であることを示すメッセージを表示すると共に、ICカード7に対しての電気信号供給を停止する(114)。

【0032】次に、信号処理機1によってテレビ受信機40から受信したデータ列を、ICカード7に格納する手順の第1の例を、図9を参照して説明する。

【0033】上述したように、暗証番号の照合処理において、入力された暗証番号とICカード7内部に格納さ

れている暗証番号とが一致した場合、CPU12は、その旨の表示を行い、この後、キー入力部3のテンキー(1又は2)及びそれに続いて「YES/=」キーが押下されることを待つ(120)。

【0034】この状態で、当該キーが押下されると、テレビ受信機40から信号処理機1に送信されている光信号を受光部10より受信し、これにより得られるデータ列を、内蔵するRAM16の所定領域に順次格納する(121)。

【0035】このとき、先のテンキー押下処理において、テンキー「1」が押下されている場合には、受信したデータ列で所定のメモリ領域が一杯になった時に、格納処理を停止する。またテンキー「2」が押下されている場合には、所定領域が一杯になった場合に当該領域内のデータ列のうち、最旧のデータ列を消去しながら追記する。

【0036】そして、この様なデータ列格納処理の最中に、「NO/CLR」が押下されたことをCPU12が検出すると、CPU12はデータ列格納処理を停止し、RAM16の所定領域内に格納されたデータ列のうち、最新データ列を表示部2の文字表示部2aに表示する(122)。

【0037】この状態で、キー入力部3の「BACK」キーを押下する度に、データ列の格納順番の逆の順番で順次データ列が表示される。この動作は最旧のデータ列が表示されるまで行われる。また、この状態において、「NO/CLR」キーを押下すると、その時表示部2に表示されていたデータ列がRAM16上から消去され、次のデータ列が表示される。この操作により、RAM16の所定領域に格納されているデータ列の内、不要となるデータ列を消去し、必要とするデータ列のみをRAM16に残すことができる(123)。

【0038】次に、操作者が「YES/=」キーを押下すると、これをCPU12が検出する(124)。そして、RAM16の所定領域に残されたデータ列が存在するか否かを確認する。もしデータ列が存在しない場合は、この旨を意味するメッセージを表示し、一方、データ列が存在する場合は、これらのデータ列を順次、ICカード7に書き込む(125)。

【0039】次に、信号処理機1によってテレビ受信機40から受信したデータ列を、ICカード7に格納する手順の第2の例を、図10を参照して説明する。

【0040】前記した第1の例と同様に、入力された暗証番号とICカード7に格納されている暗証番号が一致していた場合、CPU12は、暗証番号が一致していることを示すメッセージを表示すると共に、キー入力部3のテンキー(1又は2)及びそれに続いて「YES/=」キーが押下されることを待つ(130)。

【0041】この状態で、当該キーが押下されると、テレビ受信機40から信号処理機1に送信されている光信

号を受光部10より受信し(131)、これにより得られるデータ列を、表示部2に順次表示する(132)。

【0042】そして、この状態において「YES/＝」キーを押下すると(133)、その時点で表示されているデータ列を内蔵するRAM16の所定領域に格納する(134)。

【0043】このとき、先のテンキー押下処理において、テンキー「1」が押下されている場合には、受信したデータ列で所定のメモリ領域が一杯になった時に、格納処理を停止する。またテンキー「2」が押下されている場合には、所定領域が一杯になった場合に当該領域内のデータ列のうち、最旧のデータ列を消去しながら追記する。

【0044】また、この様なデータ列格納処理の最中に、「NO/CLR」が押下されたことをCPU12が検出すると、CPU12はデータ列格納処理を停止し、RAM16の所定領域内に格納されたデータ列のうち、最新データ列を表示部2の文字表示部2aに表示する(135)。

【0045】この状態で、キー入力部3の「BACK」キーを押下する度に、データ列の格納順番の逆の順番で順次データ列が表示される。この動作は最旧のデータ列が表示されるまで行われる。また、この状態において、「NO/CLR」キーを押下すると、その時に表示部2に表示されていたデータ列がRAM16上から消去され、次のデータ列が表示される。この操作により、RAM16の所定領域に格納されているデータ列の内、不要となるデータ列を消去し、必要とするデータ列のみをRAM16に残すことができる(136)。

【0046】次に、操作者が「YES/＝」キーを押下すると、これをCPU12が検出する(137)。そして、RAM16の所定領域に残されたデータ列が存在するか否かを確認する。もしデータ列が存在しない場合は、この旨を意味するメッセージを表示し、一方、データ列が存在する場合は、これらのデータ列を順次、ICカード7に書き込む(138)。

【0047】上述したようにして、ICカード7内に格納されたデータ列は、以下の手順に従って照会することが可能である。

【0048】まず、上述したICカード7へのデータ列書き込み処理を終了するために、図9、図10に示した各手順を終えた後に、「NO/CLR」キーを押下し、次にテンキーの「1」を押下して、続いて「YES/＝」キーを押下する。

【0049】これを信号処理機1のCPU12が検知すると、CPU12は、暗証番号入力を促すメッセージを表示する。これにより、先に説明したICカードを使用した暗証番号の照合処理を行う。

【0050】そして、ICカード7から、照合正常の応答データをCPU12が検知すると、次に、図11に示

すように、以下のようなカードアクセス処理を実行する(139)。

【0051】すなわち、まず、ICカード7に対してデータ列読み出し命令を送信する。ICカード7は、信号処理機1からのデータ列読み出し命令を受信すると、自身に格納されているデータ列が存在するか否かを判断する。そして、データ列が存在しない場合には、これを示す応答データを信号処理機1に出力する。また、データ列が存在する場合には、存在するデータ列を順次出力する。信号処理機1のCPU12は、ICカードからの応答データが、データ列であるかそれ以外かを判断する。もしデータ列であれば、これを順次RAM16に格納し、かつ最新のデータ列を表示部2に表示する。また、データ列でなければ、ICカード7にデータ列が格納されていない旨のメッセージを、表示部2に表示する。

【0052】このデータは、必要に応じて前述したRAM16内のデータ列確認/消去処理を行い、データ列の要否を確認する等の編集処理を行い(140)、この後、操作者が「YES/＝」キーを押下することにより(141)、更新されたデータ列群を前述した手順に従ってICカード7に書き込むことができる(142)。なお、先に述べた暗証番号を省略し、図10中のAの時点でICカードを挿入し、情報の書込みを行ってもよい。

【0053】以上説明したように、信号受信・データ列書き込み処理により、ICカード7(ROM)内には、信号処理機1によって外部から受信したデータ列が格納される。一方、ICカード内には、所持者情報として、所持者の氏名、生年月日、性別、住所等が格納されている。

【0054】以下、カード所持者が上記ICカード7を用いて、店舗等でサービスを受ける場合の具体例について説明する。

【0055】例えば、カード所持者が店舗等にICカード7を携帯し、図12に示すように、店舗に備えられた上述した信号処理機1及びバーコードリーダ50等を用いてサービスを受ける場合、あるいは、所持者自身が所有する信号処理機1を、店舗等に持参してサービスを受ける場合等がある。

【0056】また、カード所持者がICカード7のみを携帯し、店舗に備えられている図13に示すような専用の情報表示装置60のICカード挿入口5にICカード7を挿入し、カード内部のデータを表示部2に表示させ、同様のサービスを受けることが可能である。なお、情報表示装置60は据置き型であり、バーコードを読み取るための光スキャン部61を具備している。これで商品に印刷された商品コードを読み込み、対応するサービス情報がICカード7に記録されていれば、それを表示する。

【0057】さらに、店舗に、図14に示すような専用

の情報印刷装置70を設け、情報印刷装置70のICカード挿入口5にICカード7を挿入し、カード内部のデータを表示部2に表示及びレシート71に印刷させ、同様のサービスを受けることも可能である。レシート71にはバーコードおよび文字でサービス情報を印刷し、そのままサービスチケットとして使える。

【0058】以下では、所持者が店舗等にICカード7を携帯し、信号処理機1によってサービスを受ける場合について図15を用いて説明する。

【0059】カード所持者は、信号処理機1の表面の「ON/OFF」スイッチを押下することにより、本処理機の起動をかけ、図7、図8で説明した方法により、信号処理機1の活性化処理、カード挿入処理、および暗証番号照合処理を行う。

【0060】そして、暗証番号照合が成立した場合、CPU12は信号処理機1のテンキー、およびそれに続いて「YES/=」キーが押下されることを待つ(201)。

【0061】この状態で、カード内のデータ列を表示するためのキー(例えば「3」キー)が入力された後、「YES/=」キーが入力されたことを信号処理機1内のCPU12が検知すると、ICカード7に対してデータ列読み出し命令を送信し、ICカード7はこれを受信すると、自身のEEPROM内に格納されているデータ列が格納されているか否かを判断する。そして、データ列が存在しない場合は、これを示す応答データを信号処理機1に出力し、データ列が存在する場合は、データ列を順次信号処理機1に出力する(202)。

【0062】信号処理機1のCPU12は、ICカード7からの応答データが、データ列であるかそれ以外かを判断する。そして、データ列であれば、これを順次RAM16に格納し、かつ最新のデータ列を表示部2に表示する。一方、データ列でなければ、ICカード7にデータ列が格納されていないことを示すメッセージを表示する。この後カード所持者は、「BACK」キーまたは「NEXT」キーを押すことにより、サービスを受けようとする情報に関するデータ列を表示部2に表示させる(203)。

【0063】カード所持者は当該店舗で受けようとするサービスに関するデータ列を表示したところで、サービスを指定するキーを入力した後「YES/=」キーを押下する(204)。

【0064】信号処理機1はこれを検知した後、ICカード7に対して所持者情報の読み出し命令を送信する。ICカード7はこの命令を受信すると、自身のEEPROM内に格納されている所持者情報が存在するか否かを判断し、存在する場合は、押下されたキーに対応する所持者情報を応答データとして、信号処理機1に出力する(205)。

【0065】信号処理機1がこれを受信すると、表示部

2に表示されているデータ列と、受信した所持者情報データを合成した後(206)、バーコードデータに変換して(207)、表示部2のバーコード表示部2bに表示する(208)。

【0066】この状態において、店員はバーコードリーダー50を用いて、バーコード表示部2bに表示されたバーコードデータを読み取る(209)。

【0067】読み取られたバーコードデータは店内の端末機に送信後格納され、当該データ内に含まれるデータ列が示すサービス内容の処理を行う他、同時にサービスを受けたICカード所持者に関する所持者情報(氏名・年齢・性別等)をICカードから読み出し、これを蓄積することができる。

【0068】上記所持者情報により、当該店舗あるいはサービスを提供する会社において、顧客情報を効率的に蓄積し、管理することができる。

【0069】上記の例では、ICカード7から所持者情報全般を読み出してデータ列と合成したが、ICカード7から受信した所持者情報の中で、例えば性別情報を元に、サービスの内容を作成することも可能である。

【0070】例えば、表示部に表示されているデータ列と、ICカードから読み出した所持者情報内の性別情報より割引率を演算し(206)、これをバーコードデータに変換して(207)、バーコード表示部2bに表示する(208)。これは、例えば、割引率を女性の場合は30%引き、男性の場合は20%引き等とする場合である。

【0071】また、ICカード所持者が受けたサービスの内容をICカードのEEPROMにサービス履歴として格納し、これを以降のサービスに利用する場合の具体例を示す。

【0072】カード所持者が、当該店舗で受けようとするサービスに関するデータ列が表示されたところで(203)、このサービスを指定するキーを入力した後「YES/=」キーを押下すると、信号処理機1はこれを検知した後(204)、ICカード7に対して現在表示部2に表示されているデータ列に対応したサービス履歴情報の読み出し命令を送信する(205)。

【0073】ICカード7はこの命令を受信すると、自身のEEPROM内に格納されているサービス履歴情報の内、表示部2に表示されたサービスに対応する履歴情報が存在するか否かを判断し、存在する場合は、当履歴情報を応答データとして、信号処理機1に出力する。

【0074】信号処理機1は、応答データとして履歴情報を受信すると、過去に当該サービスを利用した回数をもとに今回のサービスの内容を作成し(206)、バーコードデータに変換して(207)、バーコード表示部2bに表示する(208)。これは、例えば利用回数に応じて割引率を増加する場合等であり、より具体的には、過去に1回のサービスを受けているごとに、割引率

を3%ずつ増加するなどの演算を行う。逆に、過去に1回でも同じサービスを受けている場合、すなわち対応するサービスの履歴情報が1件でも存在する場合は、割引率を0にし、これをバーコードデータに変換して表示することもできる。

【0075】また、ICカード7のEEPROM内に所持者が受けられるサービスのグレードを示す情報（サービス種別情報と呼ぶ）を格納する場合の具体例を示す。

【0076】カード所持者が、当該店舗で受けようとするサービスに関するデータ列が表示されたところで（203）、このサービスを指定するキーを入力した後「YES/＝」キーを押下すると、信号処理機1はこれを検知した後（204）、ICカード7に対して現在表示部2に表示されているデータ列に対応したサービス種別情報の読み出し命令を送信する（205）。

【0077】ICカード7はこの命令を受信すると、自身のEEPROM内に格納されているサービス種別情報が存在するか否かを判断し、存在する場合は、当情報を応答データとして信号処理機1に出力する。

【0078】信号処理機1がこれを受信すると、表示部2に表示されているデータ列と、受信したサービス種別情報を用いてサービスの内容を作成し（206）、バーコードデータに変換して（207）、バーコード表示部2bに表示する（208）。サービスの内容は、例えば、グレードの高いサービス種別情報に対しては、割引率を高くする等の処理を行う。あるいは、同時に所持者情報をICカードから読み出しおき、所持者情報内の性別情報とサービス種別情報を組み合わせて、サービス内容を作成してもよい。

【0079】このようにICカード7から読み出して、表示部2に表示されたデータ列と演算合成される対象となる情報の種類については、上記ステップ204で入力されるサービスを指定するキーにより決定されてもよいし、また、対象となる情報が予めデータ列に含まれる内容により規定されており、信号処理機1がこれに従って自動的に処理することもできる。

【0080】また、上記で受けたサービスの内容は、ICカード7内のEEPROMにサービス履歴として追加書き込みされる。これは、バーコードリーダ50による読み出し（209）の後、サービス履歴書き込みを指定するキー（例えばテンキー5）が入力され、「YES/＝」キーが押下されたときに（210）、信号処理機1からICカード7に対して表示部2のデータの書き込みを命令することにより実行される（211）。

【0081】あるいは、バーコードリーダ50が接続されている端末機より、サービス情報が光信号によるシリアルデータで発信され、信号処理機1の受光器4により受信し、これを電気信号に変換した後、ICカード7に書き込み命令を送ることにより実行されてもよい。

【0082】図16は、他の実施例として、据置型の信

号処理機1aの実施例を示すもので、この場合、テレビ受信機40から送信されるデータ列は、直接受信機と電氣的に接続されるケーブルにより受信する。本装置は、CATV等のデコーダと共有することが可能であり、また、ICカード7は、デコード機能を有効にするための鍵（スクランブルをはずすための鍵）の役割を果たすように構成することもできる。この場合、据置型の信号処理機1aにICカードを挿入し、CATVより送信される得点情報等をICカード7に自動的に書き込むことが可能である。

【0083】図17は、テレビ受信機40を遠隔操作するためのリモコン装置に、ICカード7に対するアクセス機構を設けた信号処理機1cの実施例（本実施例では、双方向通信型信号処理装置と呼ぶ）を示すものである。

【0084】なお、本実施例の信号処理機1cの場合、表面に設けられた「\*」キー及び「#」キーが、前述した信号処理機1の「YES/＝」キー及び「NO/CLR」キーにそれぞれ対応するようになっている。また、表示部2は、テレビ受信機40のCRTの一部（例えば、CRTの右下部分）が代用するようになっており、表示させたい情報は、テレビ受信機40のCRTの一部に表示される。

【0085】この信号処理機1cでは、受光器4をテレビ受信機40に向けて、光信号を受信し、受信したデータを発光器4cからテレビ受信機40に向けて送出し、表示することが可能であり、テレビ受信機40に受信したデータを表示させ、必要なデータを選択し、ICカード7に書き込む。

【0086】また、以上の実施例において、ICカード7に上記の情報を書き込む時に、信号処理機1は、自らが発生する日付時刻とテレビ受信機40から受けた日付時刻情報を比較し、同時刻である場合のみ、受信したデータは正当なデータであると判断し、書き込み処理を行うよう構成することもできる。

【0087】これにより、テレビ情報をビデオテープにより再生し、情報を偽造することは不可能となる。

【0088】また、ICカード7に情報を取得した番組に関する番組情報を、保存することにより、サービス提供者は、どの番組に得点情報を提供したほうが有効な情報となるかを同時に把握することが可能である。この場合、情報提供者は、ICカード7に保存してある個人情報（どんな人が）と、いつ、どのような番組をみていたかという情報を得ることができ、得点情報を利用する人の情報とともに、どの番組において、得点情報を提供するのがよいのかという情報を同時に得ることが可能となる。

【0089】さらに、上記実施例では、光あるいは電気信号から情報を得ようとした例について説明したが、例えばラジオ放送あるいはテレビ放送等の音から情報を

得よう構成することもできる。また、その情報伝達手段は光の他音でもよい。

【0090】なお、上記各実施例において、例えば、信号処理機1のキー入力部3のキーの種類、あるいはデータ処理の方法等については適宜変更可能であることはもちろんである。また、情報の出力は文字、バーコードの他、光、音、電波でもよい。

【0091】

【発明の効果】以上説明したように、本発明の携帯可能な情報処理装置及び情報処理システムによれば、従来割引クーポン券等の紙を用いて行っていた情報の提供及び回収等を、電気的な信号として取扱うことが可能となり、より多くの情報をより効率的に処理することができる。

【図面の簡単な説明】

【図1】本発明の一実施例の信号処理機の外観構成を示す図。

【図2】図1の信号処理機の外観構成を示す図。

【図3】図1の信号処理機の外観構成を示す図。

【図4】図1の信号処理機のブロック構成を示す図。

【図5】ICカードの外観構成を示す図。

【図6】情報受信処理を説明するための図。

【図7】信号処理機の活性化処理を説明するための図。

【図8】信号処理機の照合処理を説明するための図。

【図9】信号処理機のデータ書き込み処理を説明するための図。

【図10】信号処理機のデータ書き込み処理を説明するための図。

【図11】信号処理機のデータ処理を説明するための図。

【図12】データの読取り処理を説明するための図。

【図13】情報表示装置の構成を示す図。

【図14】情報印刷装置の構成を示す図。

【図15】信号処理機のデータ処理を説明するための図。

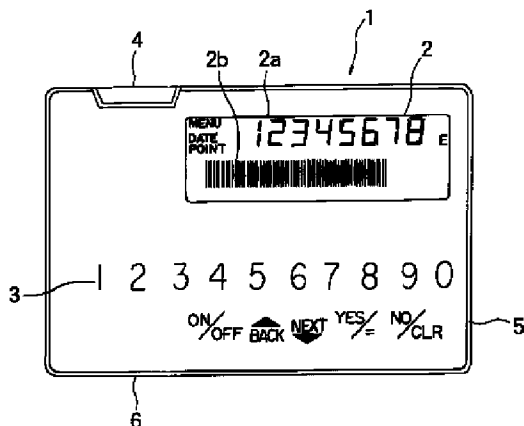
【図16】信号処理機の実施例を示す図。

【図17】信号処理機のさらに他の実施例を示す図。

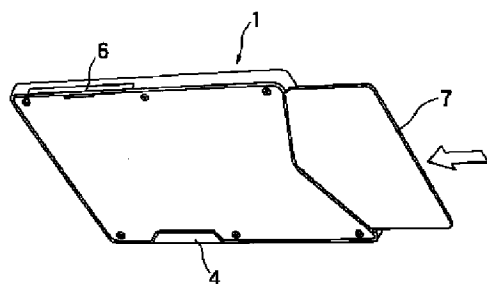
【符号の説明】

- 1 ……信号処理機
- 2 ……表示部
- 4 ……受光器
- 5 ……ICカード挿入口

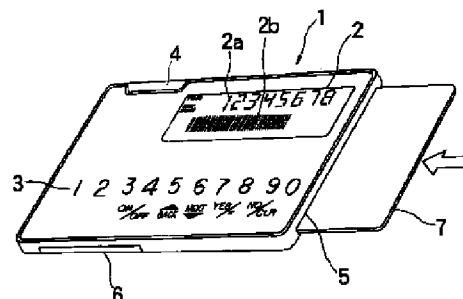
【図1】



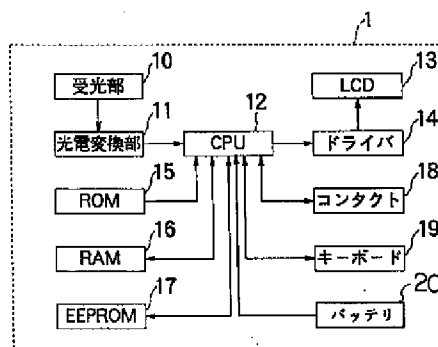
【図3】



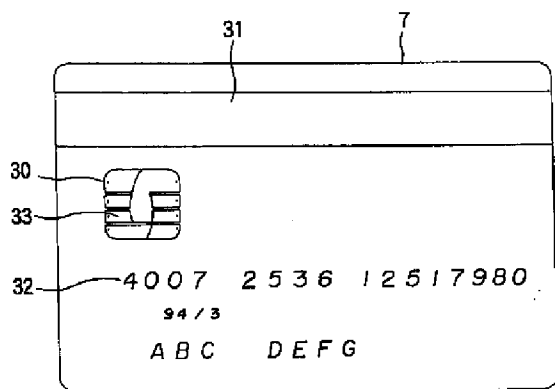
【図2】



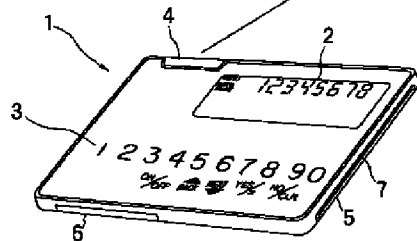
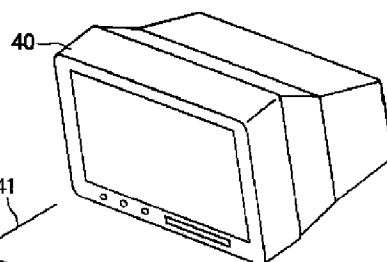
【図4】



【図5】

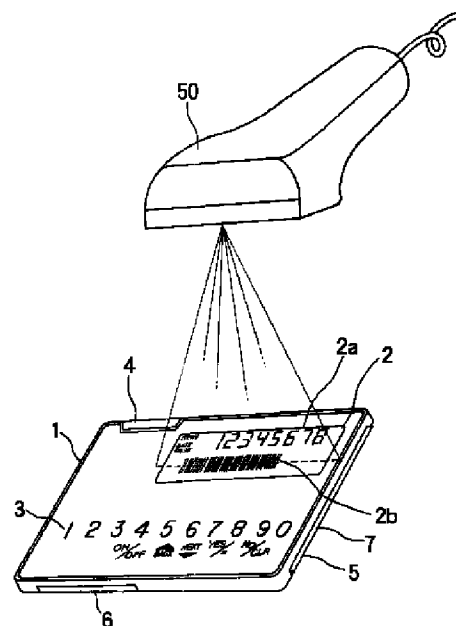


【図6】

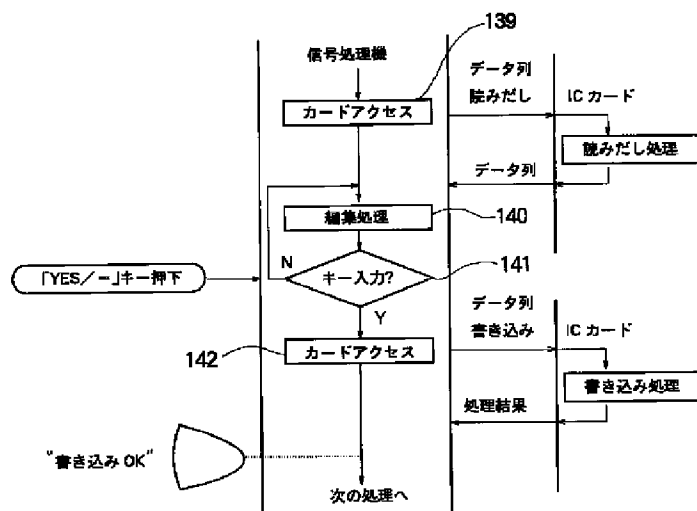
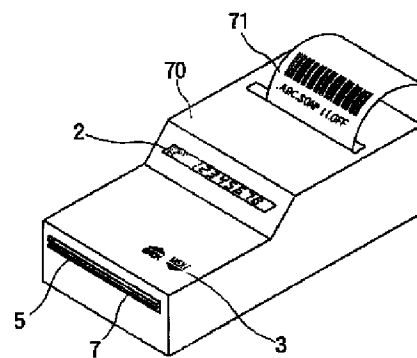


【図11】

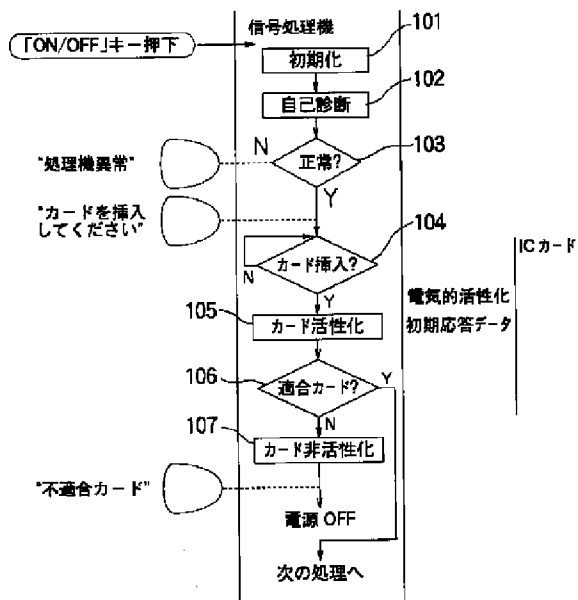
【図12】



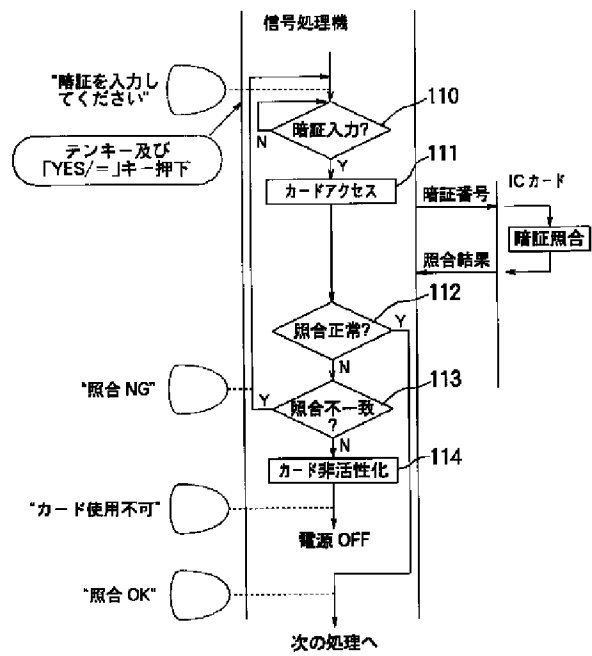
【図14】



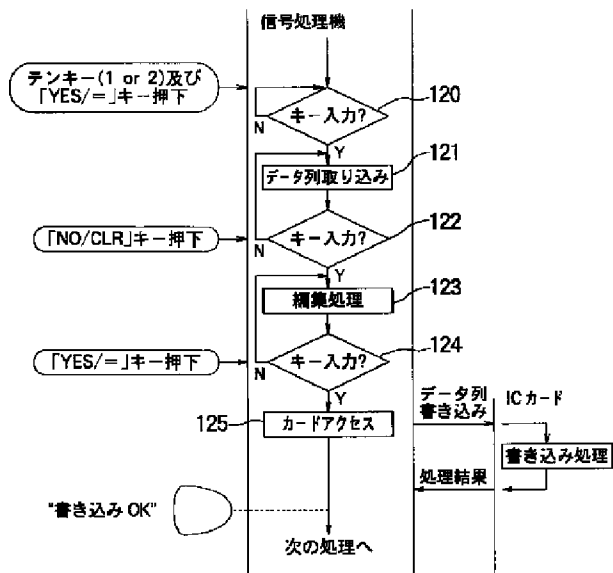
【図 7】



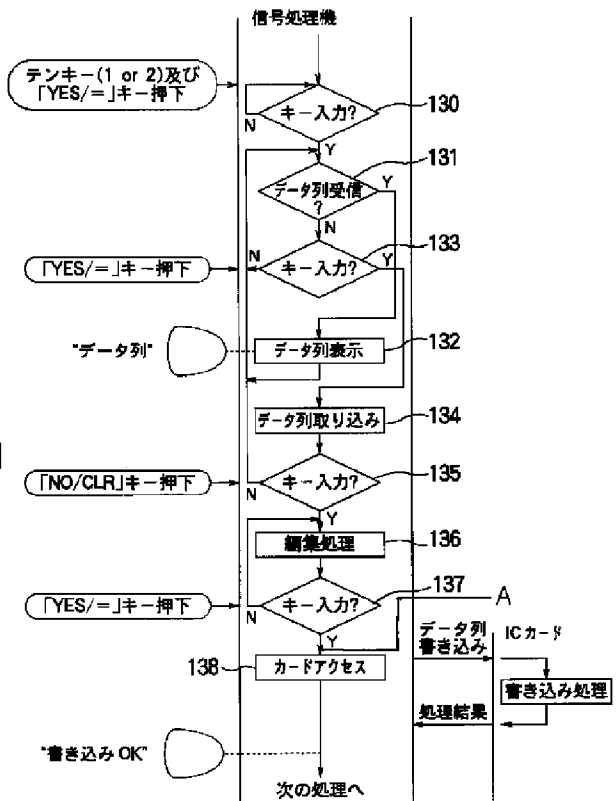
【図 8】



【図 9】

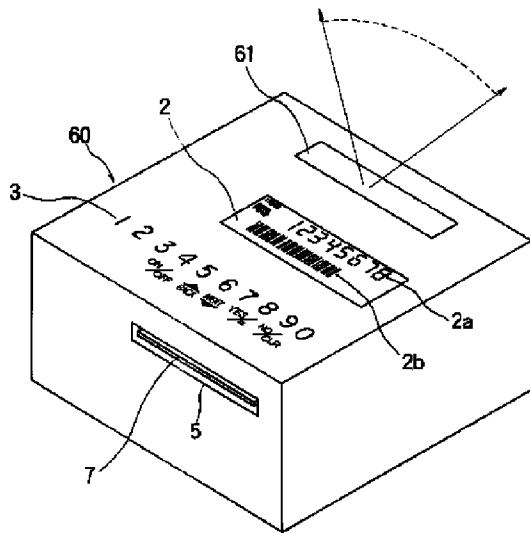


【図 10】

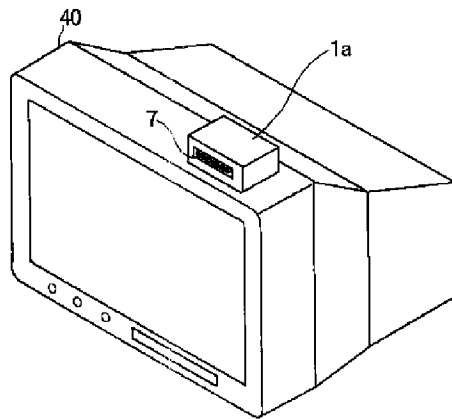




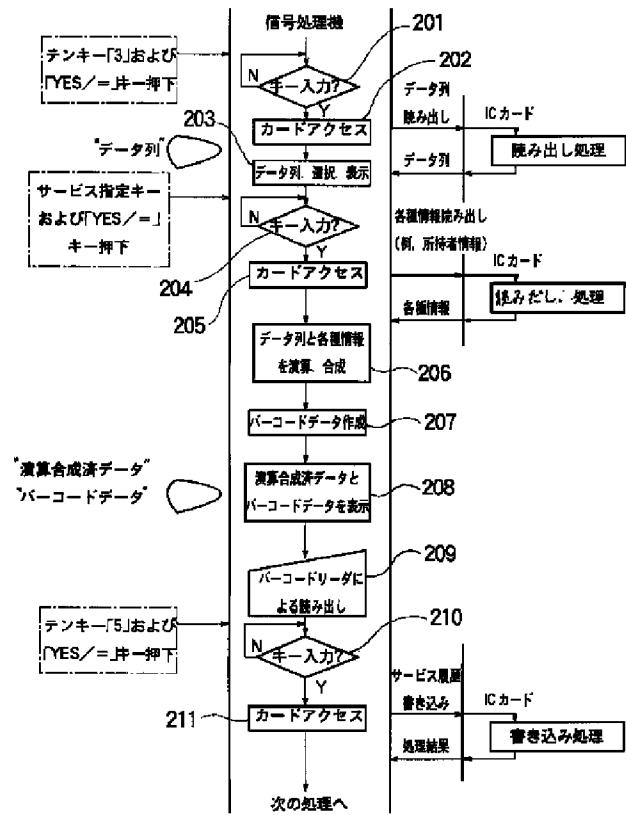
【図13】



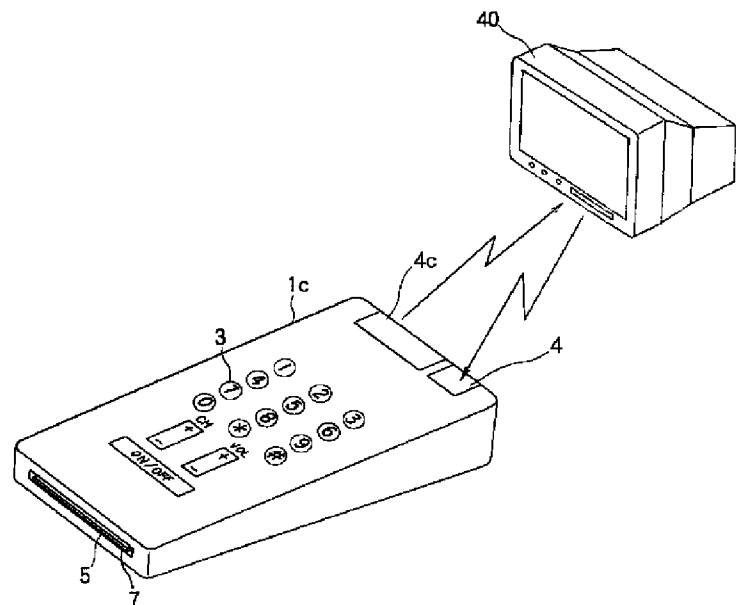
【図16】



【図15】



【図17】



フロントページの続き

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